

Customer No.: 31561
Application No.: 10/605,793
Docket No.: 9004-US-PA

IN THE CLAIMS

Please amend the claims as follows.

1. (Currently amended) A method of forming a polysilicon film ~~of a thin film transistor~~, comprising:

providing a substrate;

forming an amorphous silicon layer over the substrate;

forming an ~~a first~~ optical layer on the amorphous silicon layer, ~~wherein the first optical layer is comprised of a first region having a first thickness and a second region having a second thickness, and a reflectivity of the first region is higher than a reflectivity of the second region;~~

forming and patterning a mask layer on the optical layer;

etching the optical layer to form a heat sink layer and an anti-reflective layer, the heat sink layer being substantially thicker than the anti-reflective layer;

performing a laser annealing to transform at least a portion of the amorphous silicon layer into a molten silicon layer; and

forming a polysilicon film by crystallizing the molten silicon layer to form a polysilicon film.

2. (Currently amended) The method of forming polysilicon film of claim 1, further comprising:

forming and defining a channel region using the polysilicon film as a channel layer; and

forming source/drain regions above the heat sink layer adjacent to the channel

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region.

~~wherein the step of forming the optical layer comprising the first region and the second region further comprises:~~

~~forming an optical material layer on the amorphous silicon layer, wherein the optical material layer has a first thickness;~~

~~forming a patterned mask layer on the optical material layer; and~~

~~etching a portion of the first optical material layer using the patterned mask layer as a mask until the etched portion of the first optical material layer reaches a second thickness.~~

3. (Currently amended) The method of forming a polysilicon film of claim 1, wherein the step of etching the optical material layer is performed by ~~comprises~~ an anisotropic etching process.

Claim 4 (Canceled).

5. (Currently amended) The method of forming a polysilicon film of claim 1, wherein ~~the material of the first optical layer is formed by a thermal conductive material~~ selected from the ~~a~~ group consisting of silicon nitride and silicon oxide.

6. (Currently amended) The method of forming a polysilicon film of claim 1, further comprising forming an insulation ~~isolation~~ layer between the substrate and the amorphous silicon layer.

Claim 7 (Canceled).

8. (Currently amended) The method of forming a polysilicon film of claim 1, wherein a reflectivity of the anti-reflective layer is higher than the reflectivity of the heat

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~~sink layer the first optical layer having the second thickness exhibit a minimum reflectivity to the laser.~~

9. (Currently Amended) A method of forming a polysilicon film of a thin film transistor, ~~the method comprising:~~

providing a substrate;

forming an amorphous silicon layer over the substrate;

forming an ~~a first optical layer on the amorphous silicon layer having a first thickness and a second optical layer having a second thickness on the amorphous silicon layer, wherein a reflectivity of the first optical layer having the first thickness is higher than a reflectivity of the second optical layer having the second thickness;~~

forming and patterning a mask layer on the optical layer;

etching the optical layer to form a heat sink layer and an anti-reflective layer, the heat sink layer being substantially thicker than the anti-reflective layer;

performing a laser annealing to transform at least a portion of the amorphous silicon layer into a molten silicon layer ; ~~and~~

forming and defining a channel region by crystallizing the molten silicon layer;
~~to form a polysilicon film. and~~

forming and defining source/drain regions above the heat sink layer adjacent to the channel region.

Claim 10 (Canceled).

11. (Currently Amended) The method of forming a polysilicon film of a thin film transistor ~~as claimed in claim 9, wherein the materials of the first optical layer is~~

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formed by a thermal conductive material and the second optical layer are selected from the ~~a~~ group consisting of silicon nitride and silicon oxide.

12. (Currently Amended) The method of forming a polysilicon film of a thin film transistor as claimed in claim 9, further comprising forming an insulation isolation layer between the substrate and the amorphous silicon layer.

Claim 13 (Canceled).

14. (Currently Amended) The method of forming a polysilicon film of a thin film transistor as claimed in claim 9, wherein a reflectivity of the anti-reflective layer is higher than the reflectivity of the heat sink layer ~~the second optical layer exhibit a minimum reflectivity to the laser.~~